

EXPLORING THE EFFECTS OF DEMOGRAPHIC, ECONOMIC, AND SOCIAL
FACTORS ON CHINA'S ECONOMY

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General Studies

by

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ABSTRACT

EXPLORING THE EFFECTS OF DEMOGRAPHIC, ECONOMIC, AND SOCIAL FACTORS ON CHINA'S ECONOMY by Lieutenant Timothy J. Woodruff, 109 pages.

This thesis examined China's demographic, social, and economic factors, and their effect on China's economic growth. The study used Michael Porter's economic development model and various economic indicators to compare China's economic growth from 1978 to 2011 to Japan's economic growth from 1945 to 1978, and to the United States' (US) economic growth from 1919 to 1952. The purpose of this analysis was to identify whether China would become a peer competitor with the US within the next 20 years. The study found that China's demographic, social, and economic factors are not likely to significantly undermine China's economic growth over the next 20 years; however, though China's economic size will surpass that of the US within the next decade, China will not become a peer competitor with the US within the next 20 years. The study also found that the largest obstacle to China's long-term economic growth is China's aging population and corruption; these factors have the potential to prevent China from becoming a peer competitor with the US.

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ACRONYMS

GDP	Gross Domestic Product
FDI	Foreign Direct Investment
US	United States

CHAPTER 1

INTRODUCTION

For more than 30 years, China's Gross Domestic Product (GDP) has been growing at an average annual rate between nine and 10 percent.¹ In 2010, China's economy became the second largest in the world after that of the United States (US).² Further, the International Monetary Fund forecasts China's economy will surpass the economy of the US in 2016.³ However, with a population of 1.34 billion people, China's per capita GDP is only US\$8,400 compared to US\$48,100 for the US.⁴ Therefore, on a per capita basis, China's economy is ranked 120th, compared to 12th for the US.⁵ This growth has brought 400 million people out of poverty;⁶ however, there are still 173 million people that live on less than one US dollar per day.⁷ This situation has garnered a lot of attention from investors, economists, and defense analysts throughout the world. Some analysts argue that China's rising power will eventually surpass that of the US.⁸ Others argue that demographic, social, and economic factors will ultimately undermine China's rise.⁹

Background

In 1979, Deng Xiaoping, paramount leader of China from 1978 to 1992, initiated the opening up and reform policy by creating China's first Special Economic Zone.¹⁰ The goal of the economic reform was to improve the standard of living.¹¹ Opening up referred to policy changes that encouraged foreign investment in China.¹² From that point forward, China's economic growth has been nothing short of phenomenal.

In 1978, China also issued a family planning policy, often called the one-child policy, to slow down the growth of its massive population. This unique policy has reportedly prevented 400 million births.¹³ Today, with 1.34 billion people, China still has the largest population in the world, but also has a very low birth rate. Therefore, China is facing the problems of an aging population with a predominance of males.¹⁴ The elderly population could grow from 13.3 percent of the total population to 25 percent by 2050.¹⁵ The increase of the elderly population in absolute numbers is due to better health care extending life expectancy. The increase as a percentage of the total population is due to a low birth rate. The combination of an increasing elderly population with a low birth rate will lead to a decreasing working population. The decline of the working age population will begin in 2015 when the working age population peaks at 998 million.¹⁶ As the working age population declines, the dependency ratio, the ratio of the number of dependents to the number of workers, will increase. The preference for male children mixed with the one-child policy has left China with a predominance of males, which will lead to 30 million excess males by 2020.¹⁷

China's socioeconomic problems are not limited to population demographics. China's industrial growth has occurred at the expense of migrant workers and domestic consumption. Peasants from small towns and villages in China migrate to China's special economic zones to work in the factories seven days a week for 12-hour shifts to earn minimum wage. This forms the core of China's cheap labor.¹⁸ The money for China's industrial growth comes from bank depositors by way of cheap loans to "big, state-owned borrowers."¹⁹ These actions are "suppressing consumption, services and private business in favour of investment, industry and the state."²⁰

Another problem facing China is corruption in government and business. The government announces the prosecution of more than 50,000 corruption cases each year; however, “corruption continues to thrive.”²¹ The large danger of corruption by officials at various levels in the bureaucracy is how it destroys support for the government.²² China has also had to deal with an increasing number of protests. In 1993, there were 8,700 protests;²³ in more recent years, there has been an average of 120,000 protests per year.²⁴ The increase is largely due to China’s quick economic growth.²⁵ Some causes of protests include income inequality, rising unemployment due to the closing of some state-owned factories, the failure of the government to fulfill financial obligations to former employees of closed state-owned enterprises,²⁶ local official corruption, seizure of land for developmental purposes, and police brutality.

Some social problems have developed because of China’s economic growth. In order to create enough jobs to employ young people entering the workforce, the Chinese economy needs to grow at seven percent.²⁷ As a result, social goods, such as health care, education, and environmental protection have been ignored.²⁸ Compared to other developing countries, China’s national spending on education has consistently been below average.²⁹ Additionally, the government spends approximately 10 percent of its GDP to handle environmental damage.³⁰

The gap between rural and urban living has been a growing cause of unrest in rural China. This gap gives city dwellers more than three times the spending power of rural inhabitants, better schools, and more access to medical care.³¹ As a result, many rural inhabitants migrate to the city in search of employment, despite not getting access to public services since they are not city residents.³² The percentage of people living in the

cities has increased from 18 percent in 1978 to 45 percent in 2009,³³ and this percentage will possibly grow to 60 percent by 2020.³⁴ Considering these actions, social, economic, and demographic factors may evolve over the next 20 years to constrain China's future.

This thesis intends to examine the successes and struggles within the Chinese economy in order to assess China's potential for future growth. As such, it is necessary to utilize a model for economic development. In *The Competitive Advantage of Nations*, Michael Porter defines a model to describe the nature of the economic development of countries. According to Porter, there are four stages of economic development: factor-driven, investment-driven, innovation-driven, and wealth-driven.³⁵ This thesis will utilize Porter's model to examine China's economic development. Specifically, the thesis will define the current stage and explore the potential for China's economic development. As part of this discussion, the thesis seeks to examine many of the current and potential obstacles to China's further economic development.

As a final step, this thesis will use the economic development of the US and Japan as bases for comparison. For the US, the thesis will examine the period 1919 to 1952. The US, in the period 1919 to 1952, represents a nation in the innovation-driven stage of development, having achieved hegemonic status. For Japan, the thesis will examine the period 1945 to 1978. Japan, in the period 1945 to 1978, represents a nation transitioning from the investment-driven stage to the innovation-driven stage of development. This comparison will show which aspects of the Chinese economy may lead to success and which aspects portend potential decline.

Proposed Research Questions

The primary research question of the thesis is: Will China become a peer competitor of the US within the next 20 years given its demographic, social and economic problems? In order to answer the primary question, it is also necessary to address the following secondary questions:

1. What demographic, social, and economic problems exist in China?
2. How are these problems affecting China's economic development?
3. What effect do China's state-owned banks have on China's economy?
4. What factors draw so many rural Chinese to travel and work in urban China?
5. Why have the number of protests in China increased in frequency in the last decade?
6. What effect will shifts in population demographics over the next 20 years have on the Chinese economy?
7. How do the social, demographic, and economic factors in China compare to similar factors in other countries during their development?

Assumptions

This thesis assumes that China will not make significant changes to the one-child policy. Any changes that China does make, however, are unlikely to have a significant effect on China's population demographics for the next 20 years. Additionally, this thesis assumes there will not be a significant world event, such as a war involving China, within the next 20 years. An event like a major conflict would have unpredictable effects on the growth of any countries involved; however, the intent of the thesis is to examine the economic effects of China's current demographic, economic, and social problems.

Therefore, this thesis will ignore the possible effects of any potential significant, non-economic world event.

Limitations and Delimitations

The research for this study will be limited to the information found at the US Army's Fort Leavenworth Combined Arms Research Library, on the World Wide Web, and on open source databases. Additionally, the study of demographics in this thesis will be limited to gender distribution and age distribution; the thesis will not discuss other areas of demographics.

Scope

The scope of this study is to determine the likelihood that China will become a peer competitor with the US in the next 20 years. In this regard, the forecast will be limited to the next 20 years, based on data beginning with China's opening up and reform in 1978.

Significance of the Study

The economies of the US and China are linked. In 2011, there was over US\$500 billion worth of trade between the US and China.³⁶ Additionally, China holds approximately eight percent of US debt.³⁷ Due to the economic linkages between China and the US, an economic crisis for one side can lead to problems for the other side. Therefore, it is important for the US to understand the health and welfare of the world's second largest economy. Understanding the strengths and weaknesses of the Chinese economy can help the US formulate a strategy that reduces the possibility for conflict between the two largest economies.

Summary

China's historic rise to become the second largest economy in the world has caused imbalances in China's economic, social, and demographic fabric. An economy growing at the rate of an early developing nation mixed with a significantly aging population may have large potential problems. This thesis will delve into the Chinese economy and attempt to assess its strength or fragility. This chapter has provided a brief introduction into the thesis, covering a short historical background of China's economic rise and introducing potential problem areas in China's economy. The chapter also presented the research questions and methodology and the limitations of the study. Chapter 2 will discuss the extensive literature available to examine the Chinese economy and the problems therein that could potentially impede China's future economic growth. Chapter 3 will lay out in detail the proposed methodology for analyzing the data. Chapter 4 will show the analysis of the data as well as attempt to answer the secondary research questions. Chapter 5 will conclude the thesis and examine the answer to the primary research question.

¹David C. Kang, *China Rising: Peace, Power, and Order in East Asia* (New York: Columbia University Press, 2007), 3.

²"Hello America: China's Economy Overtakes Japan's in Real Terms," *The Economist*, 16 August 2010, <http://www.economist.com/node/16834943> (accessed 1 August 2012).

³Brett Arends, "IMF Bombshell: Age of America Nears End," *Marketwatch*, 25 April 2011, http://www.marketwatch.com/story/imf-bombshell-age-of-america-about-to-end-2011-04-25?link=MW_home_latest_news (accessed 1 August 2012).

⁴Central Intelligence Agency (CIA), "Country Comparison: GDP (Purchasing Power Parity)," *The World Factbook 2012*, <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2001rank.html> (accessed 26 November 2012).

⁵Ibid.

⁶Susan L. Shirk, *China: Fragile Superpower* (New York: Oxford University Press 2007), 17.

⁷World Bank Data, “China,” <http://data.worldbank.org/country/china> (accessed 26 November 2012).

⁸James Kyng, *China Shakes the World: A Titan’s Rise and Troubled Future—and the Challenge for America* (New York: First Mariner Books, 2007).

⁹Sharon Hom and Stacy Mosher, eds., *Challenging China: Struggle and Hope in an Era of Change* (New York: The New Press, 2007); Susan Yoshihara and Douglas A. Sylva, eds., *Population Decline and the Remaking of Great Power Politics* (Washington, DC: Potomac Books, 2012).

¹⁰Li Lanqing, *Breaking Through: The Birth of China’s Opening up Policy* (New York: Oxford University Press, 2009), 78.

¹¹John Bryan Starr, *Understanding China: A Guide to China’s Economy, History, and Political Culture*, 3rd ed. (New York: Hill and Wang, 2010), 97.

¹²Lanqing, 60-67.

¹³“China’s Population: The Most Surprising Demographic Crisis,” *The Economist*, 5 May 2011, <http://www.economist.com/node/18651512> (accessed 12 April 2012).

¹⁴Ibid.

¹⁵“China’s Population: The Most Surprising Demographic Crisis”; Yoshihara and Sylva, 35.

¹⁶Fang Cai, “Demographic Transition, Demographic Dividend, and Lewis Turning Point in China,” *China Economic Journal* 3, no. 2 (July 2010): 114.

¹⁷Phillip Longman, “The Geopolitical Implications of Global Aging,” in *Population Decline and the Remaking of Great Power Politics*, ed. Susan Yoshihara and Douglas A. Sylva (Washington, DC: Potomac Books, 2012), 31.

¹⁸Jasper Becker, *Dragon Rising: An Inside Look at China Today* (Washington, DC: National Geographic Society, 2006), 132, 141.

¹⁹“Set the Money Free; China’s Capital Controls,” *The Economist*, 3 March 2012, <http://www.economist.com/node/21548943> (accessed 12 April 2012).

- ²⁰Ibid.
- ²¹Starr, 157.
- ²²Shirk, 32.
- ²³Ibid., 56.
- ²⁴Starr, 90.
- ²⁵Eric C. Anderson, *China Restored: The Middle Kingdom Looks to 2020 and Beyond* (Santa Barbara, CA: Praeger, 2010), 82-93.
- ²⁶Wayne M. Morrison, *China's Economic Conditions* (Washington, DC: Congressional Research Service, 2012), 31; Starr, 99-100.
- ²⁷Starr, 151.
- ²⁸Shirk, 32.
- ²⁹Ibid., 33.
- ³⁰Anderson, 81.
- ³¹Starr, 104.
- ³²Ibid., 107.
- ³³Ibid., 153.
- ³⁴Shirk, 29.
- ³⁵Michael E. Porter, *The Competitive Advantage of Nations* (New York: The Free Press, 1990), 546.
- ³⁶United States Census Bureau, "Foreign Trade Balance," <http://www.census.gov/foreign-trade/balance/c5700.html> (accessed 15 November 2012).
- ³⁷Tom Murse, "How Much U.S. Debt does China Really Own?" <http://usgovinfo.about.com/od/moneymatters/ss/How-Much-US-Debt-Does-China-Own.htm> (accessed 15 November 2012).

CHAPTER 2

LITERATURE REVIEW

Because of China's historic growth over the past three decades, there has been substantial literature written about the nature of this rise. The purpose of this thesis is to identify whether certain elements of China's economy present unmanageable obstacles to China's economic growth. This chapter serves to summarize the extensive literature discussing China's rise and present state. This chapter will begin by examining the definition of peer competitor, then discussing Porter's model for economic development, social, economic, and demographic factors in China, and concluding with a review of the literature utilized in analyzing the economies of the US and Japan.

Peer Competitor

To correctly answer the primary research question, peer competitor must be defined. Robert C. Bitting states that a "peer competitor must be able to compete with and resist U.S. influence effectively in all major areas of national power."¹ Szayna et. al. define a peer competitor as a "state or collection of challengers with the power and motivation to confront the United States on a global scale in a sustained way and to a sufficient level where the ultimate outcome of a conflict is in doubt even if the United States marshals its resources in an effective and timely manner."² This thesis will examine China alone as a potential peer competitor and not consider the possibility of a collection of challengers. Additionally, a military conflict will not be the only type of conflict considered. A conflict between China and the US could occur in the diplomatic, informational, military, or economic domains of national power. As such, this thesis

argues that, in order to be a peer competitor, China must have the power and motivation to confront the US on a global scale in a sustained way and to a sufficient level where the ultimate outcome of a conflict in any one domain or in all domains of national power is in doubt even if the US marshals its resources in an effective and timely manner.

Porter's Economic Development Model

Porter's economic development model divides the economic growth of a nation into four stages based on certain "competitive advantages" the nation possesses at a given time. In the factor-driven stage, advantage is gained based on "basic factors of production." In the investment-driven stage, the nation gains advantage through investment in the best technology available on the international market. In the innovation-driven stage, nations gain advantage through their ability to develop new technology. In the wealth-driven stage, investors in the nation desire ways to maintain the wealth they gained previously rather than increase their wealth. This ultimately leads to a period of decline as money is shifted away from industry. Not all nations grow out of the factor-driven stage, and some nations begin to decline before reaching the wealth-driven stage.³ The ability of a nation to progress through these stages depends upon "four broad attributes of a nation that shape the environment in which local firms compete that promote or impede the creation of competitive advantage."⁴ The four attributes that, together, comprise Porter's national "diamond" are: factor conditions, demand conditions, related and supporting industries, and firm strategy, structure and rivalry.⁵

Demographic, Economic, and Social Factors in China

Demographic Factors

The growth of China's economy has highlighted numerous problems that could ultimately undermine China's economic growth. Some significant demographic factors in China include an aging population and an excess of males. Both of these issues have connections to the one-child policy; however, the one-child policy is not the sole reason for the developing problems. The elderly now make up 8.4 percent of the total population.⁶ This percentage could reach 25 percent by 2050.⁷ Additionally, there are currently 118 newborn boys for every 100 girls; this will lead to 30 million excess males by 2020.⁸

The World Bank divides populations into three age groups: 0-14, 15-64, and 65 and older. This thesis will refer to these age groups as children, working age, and elderly, respectively. However, the retirement age in China is 60 for males and 55 for females.⁹ Therefore, the actual working population will be less than indicated by the age group while the retired population will likely be more than the age group indicates. For example, the World Bank reports that the elderly make up 8.4 percent of the population,¹⁰ but *The Economist* states that 13.3 percent of the population is above the age of 60.¹¹ Using the 2010 census results, Zhao and Chen analyzed the data and concluded the fertility rate over the last 15 years was likely lower than reported.¹² Their projections show the elderly population will reach 27 percent by 2050.¹³ Similarly, DaVanzo and Dogo show the working age population decreasing to 60 percent by 2035.¹⁴ Susan Shirk says the working population will continue to drop after that, falling to 22 percent by 2065 if the Chinese government does not take actions to correct the problem.¹⁵ According to a

forecast by the United Nations in 2008, this decline will begin in 2015 when the working age population peaks at 998 million,¹⁶ or approximately 73 percent of the total population.

China's intention with the family planning program was to keep the fertility rate down to replacement levels; however, it has fallen far below that. Further, Zhao and Chen state there are "indications that the major driving force of China's current low fertility is no longer the strict birth control imposed by the government."¹⁷ Fang Cai points out that the one-child policy had very little effect on the fertility rate since it had already significantly dropped before the policy had been implemented.¹⁸

Many analysts state how demographic factors in China have created and will continue to create social problems. Hesketh, Hudson, den Boer and Hudson, Edlund et. al., and Chang all point out the excess of males, in some societies, has led to an increase of violent crimes as well as increased military participation.¹⁹ Hesketh also mentions the excess males could destabilize China or threaten regional security because they "lack a stake in the existing social order" due to their inability to find a marriage partner.²⁰ Hudson refers to many examples where excess males have threatened a country's stability; the governments often then use military action to employ these males in an effort to maintain stability.²¹ Chang states demographic issues could lead China into a conflict with India; however, he also presents the argument that China may become less aggressive since few parents would be willing to send their only son off to war.²² *The Economist* states the excess of males has increased the crime rate and "probably increased China's savings rate." Parents of an only son tend to increase their savings in order to improve the chances the son will be able to attract a wife. *The Economist* reports,

if increased savings in China is due to this reason, it may negatively impact the ability of the Chinese government to increase domestic consumption.²³

Demographic factors could affect China's ability to grow its economy. *The Economist* states China's demographics could have "vast destabilising consequences."²⁴ A comparative analysis of China and India done by Wolf et. al. states demographic changes will hinder China's progress unless compensatory measures are taken "to improve technology, increase investment in human capital, or develop a more skilled and more productive labor force."²⁵ Phillip Longman states that though China is currently benefiting economically from its slowed birth rate, the one-child policy will eventually challenge China's growth. Longman says China's problems will arise from instability caused by a large number of "'unmarriageable' men" and from one child being required to support two parents and four grandparents.²⁶ Longman also argues that the aging population in China will prevent it from replacing the US as a superpower.²⁷ He further predicts that, unless the government intervenes soon, demographic problems will ultimately prevent China from becoming a "true economic powerhouse."²⁸ Chang explains that China's "demographic dividend" ended in 2010 with the peaking of the proportion of working-age Chinese, a phenomenon that, according to Cai, is the "greatest threat to China's economic growth."²⁹ DaVanzo and Dogo argue the rising ratio of dependents to workers, along with the resultant health costs and lower savings rates, could reduce the availability of money for investments. Further, the government may have to use some of the budget it now uses for public investment to support health care and pensions.³⁰ Hudson echoes this, explaining that in addition to lower savings rates, consumption will decrease since elderly consume significantly less than workers.³¹

“Nyce and Schieber . . . note that if aging brings with it higher pension costs, this will lead to fewer low income jobs, wage depression, slowing economic growth and job creation, declining interest from foreign investors, lower entrepreneurship, and higher budget deficits.”³²

Global demographic patterns could add to the economic difficulties China may face due to its own demographics. The Center for Strategic and International Studies Commission on Global Aging reports that the significance of the aging of China’s population is that “China is aging at a much earlier stage of economic and social development.”³³ The Commission further states that the increasing size of the working age population has added 1.8 percentage points per year to China’s GDP growth rate, and as the working age population decreases starting in the next few years, this will subtract 0.7 percentage points per year from its GDP growth rate by the 2030s.³⁴ In addition to this reduction in GDP growth rate, global aging could cause a reduction of foreign capital inflow into China, which, along with a decrease in savings due to China’s aging population, “means China’s continued economic success will hinge on its ability to efficiently allocate savings to investment.”³⁵

On the other hand, global demographic patterns may help China. Francis P. Sampa states, “over the long term . . . the relative aging and decline of population undermines national power,”³⁶ arguing that the decline of other nations, such as Russia, will create “geopolitical opportunities for China.”³⁷

Economic Factors

The banking system in China and China’s state-owned enterprises are other areas that reveal potential problems in China’s economy. Though China has reduced the

number of state-owned enterprises since beginning the reform in 1978, some of the largest state-owned enterprises still dominate many of China's major economic sectors. Further, the central government decided to regain control of the economy by partially reversing its policy of opening up the economy to private enterprises. Since the central government operates and manages many of the largest state-owned enterprises, the government subsidizes these enterprises and protects them from foreign competition. In addition to state-owned enterprises, the government exercises direct or indirect influence over many other companies through local governments or joint venture arrangements. Central government influence is also present in some private companies that the government believes are "strategically important." Further, strategic industries are restricted to Chinese companies; foreign companies are not permitted to operate in these industries.³⁸

Additionally, a 2009 study showed that, when the costs of the subsidies are taken into account, state-owned enterprises are less profitable than private companies.³⁹ Morrison mentions the state-owned enterprises are inefficient, adding that the loans provided to the state-owned enterprises by the central government controlled banks result in a transfer of wealth from Chinese citizens to Chinese companies.⁴⁰ *The Economist* says these loans "represent a tax on depositors and a subsidy for industry."⁴¹

Government control of some banks is one way the central government influences the economy. Despite that China has allowed foreign banks into its country, these institutions claim they are not able to compete fairly. The government is still maintaining a strong hand in the control of some Chinese banks resulting in subsidies to selected companies.⁴² Additionally, the central government requires these banks to give below

market interest rate loans to state-owned enterprises and sometimes forgive these loans. In 2009, for example, state-owned enterprises received 85 percent of the US\$1.4 trillion in bank loans.⁴³

There is some concern, however, that some of these Chinese banks may in fact be insolvent,⁴⁴ due largely to numerous nonperforming loans.⁴⁵ Anderson argues that many of the economic problems China is facing are not as bad as they are perceived.⁴⁶ Anderson shows evidence that, by 2006, China's efforts to fix its banking problems reduced the non-performing loans to a value between US\$133 billion and US\$160 billion, though Western accounting firms reported the value as US\$475 billion.⁴⁷ In an effort to fix this problem, starting in 1999 and 2000, some of the nonperforming loans of four major banks were transferred to newly created asset management companies. Some of the loans were transferred at full face value, and some were transferred at a discount value. The asset management companies then issued bonds to raise operating capital. The four major banks bought most of the bonds, "effectively bringing the [nonperforming loans] back onto their books, but 'disguised' as a new type of asset."⁴⁸ Eventually, three of the four major banks also acquired significant equity ownership in the asset management companies. Martin says that since these asset management companies are potentially insolvent, the strength of the banks is thus called into question.⁴⁹

Through June 2011, the ratio of nonperforming loans to total loans in China had lowered to 1.0 percent. However, in 2011, many of China's banks saw the number of overdue loans increase significantly. Further, US\$290 billion of local government debt is coming due in 2012.⁵⁰ According to Charlene Chu from Fitch, a ratings agency, Fitch's disaster warning system estimated there was a 60 percent chance of a banking crisis by

the middle of 2013, due in part to indicators like the above and the increase in lending that occurred between 2008 and 2010.⁵¹ Several financial analysts estimate the ratio of nonperforming loans to total loans in China could rise to between 12 percent and 15 percent within the next few years.⁵²

In addition to an increase in nonperforming loans, a drop in property values may cause problems for China's banks. Local governments rely on land sales for some of their revenue and to repay debt. As a result, the local governments and the banks that are supplying loans to the local governments are at risk if property values drop. Huang Jifa, deputy general manager for investment banking at Industrial and Commercial Bank of China, says the loans to local governments are not an issue because they are invested in projects that will have returns. However, Huang also said a drop in property prices would cause problems for the local governments and the banks.⁵³

Another factor affecting China's growth is the structure of its economy. Foreign trade made up 75 percent of China's GDP in 2007. Martin Jacques states this much exposure to foreign trade leaves China "more vulnerable to external shocks such as a global downturn."⁵⁴ Similarly, inflows for foreign direct investment began increasing in the 1990s supporting China's rapid economic growth with increases in productivity.⁵⁵ Michael Porter indicates that large amounts of foreign direct investment, when not passive, can spur economic growth, but it can also indicate the domestic firms lack a competitive advantage.⁵⁶ Jacques however, argues that China, by opening itself to foreign investment and global competition, has forced Chinese companies to become competitive.⁵⁷ Peerenboom states the Chinese government's use of policy to regulate foreign direct investment enabled China to gain from foreign direct investment while not

losing advantage in certain sectors.⁵⁸ Besides foreign trade and foreign direct investment, domestic consumption is another aspect of China's economic structure that could affect China's growth potential.

Household consumption decreased as a percentage of GDP between 2001 and 2010.⁵⁹ *The Economist* suggests the small amount of consumption compared to investment makes China's economy appear unstable.⁶⁰ However, they also state consumption has been increasing rapidly; however, China's GDP is increasing more quickly, resulting in consumption making up a decreasing percentage of the economy.⁶¹ *The Economist* also argues a "higher rate of government consumption would be equally desirable—and perhaps more feasible."⁶²

In addition to the structure of China's economy, there is also some concern regarding the long-term effect of China's currency policy on China's economic growth. Between 1994 and 2005, the Chinese government maintained a policy of keeping the Yuan at a constant exchange rate relative to the US dollar by purchasing or selling US dollar-denominated assets in exchange for Yuan. Between 2005 and 2008, and since the middle of 2010, the Chinese government allowed the Yuan to appreciate with respect to the US dollar at a controlled rate. Between 2008 and 2010, the Chinese government halted the appreciation of the Yuan due to a decline in global demand for Chinese products.⁶³ Some economists argue the suppression of China's currency has directly contributed to China's large export market and China's rapid economic growth. Paul Krugman, for example, argues China's mercantilist policies, subsidizing exports, have allowed China to gain at the expense of other nations.⁶⁴ However, some economists argue China's currency policy will have negative long-term effects on China's economy.

Jonathan Finegold argues the inflation of the Yuan with respect to the US dollar harms the Chinese entrepreneur, the Chinese saver, and the Chinese consumer.⁶⁵ Finegold goes on to say the Chinese government is essentially stealing from China's producers, consumers, and savers.⁶⁶

Though there are several economic problems in China, there is a wide diversity of opinion on whether any or all of these economic factors will negatively affect China's long-term economic growth. Martin Jacques did a brief comparison of the growth of the economies of China, the US, and Japan. For the US, he examines the period from 1870 to 1913. For Japan, he examines the period 1950 to 1973. His comparison primarily shows that China's growth has had a greater effect on the global economy than Japan's or the US'. Specifically Jacques says that the size of China's population, the size of China's work force, the rate of China's economic growth, and the effect China has had on global trade are positively affecting global growth. However, Jacques points out that China's increasing use of natural resources is negatively affecting global growth.⁶⁷

Examining China's banks, *The Economist* argues the banking system is stable due to the availability of cheap money from depositors. However, extremely low interest rates are unfair to depositors, and it carries some risk as people seek out other alternatives for their money.⁶⁸ Additionally, low interest rates will impede the Chinese government's goal of increasing domestic consumption.⁶⁹ China's largest economic problem, according to *The Economist*, is malinvestment, or inefficient allocation of capital.⁷⁰

Starr states that China's banking system problems are one factor that could hamper China's economic growth.⁷¹ *The Economist* however, argues China's financial system "may be inefficient in its allocation of capital, but it is quite stable."⁷² Martin

Jacques though, argues China's economic growth model is not sustainable in the medium or long term. Jacques says, too much dependence on inefficient investment will result in economic decline; improving labor productivity and the efficiency of capital are the keys to sustaining China's growth according to Jacques.⁷³ Morrison agrees that increasing productivity is important; however, he adds the Chinese government also needs to continue with economic reform to transition more quickly to a free market economy and increase consumer demand and innovation.⁷⁴ Morrison further states that failure by the Chinese government to implement economic reforms that would fix many of China's economic and social problems could inhibit China's future economic growth.⁷⁵

Social Factors

China also has many social factors that could affect its economic development. Corruption in business and the government is one aspect that could undermine China's rise. John Bryan Starr explains that three aspects of Chinese society cause corruption to be exceptionally prevalent: the Confucian mind-set that society is a "web of hierarchical relationships," the "experience of sixty years of socialist rule," and "the economy's current state of incomplete marketization."⁷⁶ Chen Guidi and Wu Chuntao illustrate one instance where corruption by a government official in a small town resulted in the townspeople uniting against him to have him removed from office.⁷⁷ Starr mentions the more recent embezzlement and misuse of US\$35 billion in public funds by officials.⁷⁸ Even though the government announces the prosecution of more than 50,000 corruption cases each year, "corruption continues to thrive."⁷⁹ Shirk explains that the large danger of corruption is how it destroys support for the government.⁸⁰ Pei however, argues corruption has very direct economic costs in addition to its other effects. Pei shows that

corruption in China has cost China at least three percent of GDP per year. Pei also says “failure to contain official corruption will inevitably endanger China’s economic development.”⁸¹

The compilation put together by Hom and Mosher also provide examples of government cover-ups, media control, and wrongful imprisonments.⁸² He Qinglian explains that Chinese citizens protest because the government is stealing land for natural resource development. He critiques the government stating “China is exhausting the world’s limited natural resources, failing to address its mass unemployment, and wrecking the environment.”⁸³ As protests and riots have increased, the Chinese government has looked for various methods to suppress the instigators, such as harassment, surveillance, or house arrest.⁸⁴ Starr suggests that protests and petitions are two methods Chinese citizens use to express their dissatisfaction in a one party political system. Though petitions have increased significantly over the past 30 years, the government chooses to ignore the majority of them, preferring instead to place the petitioner in a secret jail.⁸⁵ Similarly, protests have grown from 8,700 in 1993⁸⁶ to a recent average of 120,000 per year.⁸⁷ The increase, according to Eric C. Anderson, has occurred in spite of, and perhaps because of, the quick economic growth China is undergoing.⁸⁸ Morrison also states that the rising income gap between the rich and the poor is one of several causes of increased protests.⁸⁹ Other causes of protests include rising unemployment due to the closing of some state-owned factories as well as the failure of the government to fulfill financial obligations to former employees of closed state-owned enterprises.⁹⁰ Minxin Pei argues the increase in protests in concert with China’s economic growth is due to the uneven distribution of the economic benefits, the

low quality of the economic growth, and the systemic corruption.⁹¹ Though the government has created laws and formed nongovernmental organizations to address the underlying issues, the laws are inadequately followed and the nongovernmental organizations are underfunded.⁹²

Other problems have also resulted from the government's focus on growing the economy. The Chinese government seems most concerned about employment, and some estimates show that the Chinese economy needs to grow at seven percent to create jobs for young people entering the workforce.⁹³ Shirk explains that since the government has focused primarily on growing the economy for job creation, social goods, such as health care, education, and environmental protection have been ignored.⁹⁴ Shirk continues, stating that national spending on education has consistently been below the average for developing countries,⁹⁵ though the government has been vowing since 1993 it will increase the education budget to four percent of GDP.⁹⁶

According to China's State Environmental Protection Agency, the government spends approximately 10 percent of the GDP to handle environmental damage.⁹⁷ Despite this expenditure, pollution steadily gets worse. According to a report by China's State Oceanic Administration, more than 80 percent of China's sea areas contain some amount of pollution.⁹⁸ Because of the polluted waterways, almost 500 million people are unable to obtain safe drinking water.⁹⁹ Additionally, of the world's 20 most polluted cities, 16 are in China, and lung disease from pollution causes the death of 400,000 people each year in China.¹⁰⁰

Air pollution in Beijing in 2008 was a significant concern for the Olympics. Without the major efforts taken by the government to temporarily reduce the air

pollution, some Olympic events may have had to be postponed.¹⁰¹ A recently released study by the *Journal of the American Medical Association* showed evidence that this temporary air pollution reduction improved several indicators of heart health; however, the heart health indicators worsened along with the air pollution after the 2008 Olympics.¹⁰² Despite the significant amount of pollution, Eric C. Anderson questions whether China might abandon its efforts to clean the environment, preferring instead to focus on maintaining and increasing employment.¹⁰³

The lack of effective regulation has also resulted in serious incidents affecting the health and welfare of Chinese citizens. For example, in 2008, melamine, found in the milk powder produced by the Sanlu Company, resulted in six infant deaths and made 300,000 other babies ill.¹⁰⁴ Horrified by “stories about bleached mushrooms and dyed raspberries and hormone-injected milk,” many foreigners chose to leave China, an option not available to Chinese citizens.¹⁰⁵

Income inequality is another growing problem in China. Susan Shirk refers to the Gini coefficient to illustrate the extent of income inequality in China.¹⁰⁶ The Gini coefficient is a statistical measure of how much dispersion exists in a set of data.¹⁰⁷ It is commonly used to measure income inequality in a given country. A Gini coefficient of zero indicates complete equality, and a coefficient of one would be indicative of a single person having all the income. Shirk explains that China’s Gini coefficient has been rising, reaching between .46 and .49 in 2007. This compares to values of .41 for the US, .36 for the United Kingdom, and .28 for Germany.¹⁰⁸

The growing gap between rural and urban living is another social problem in China. Besides the income gap, resulting in city dwellers having more than three times

the spending power of rural inhabitants, Starr states the rural population has poorer schools and less access to medical care.¹⁰⁹ This has resulted in many rural inhabitants migrating to the city in search of employment, even though they do not get benefits and have no access to public services since they are not city residents.¹¹⁰ This migration has increased the percentage of people living in the cities from 18 percent in 1978 to 45 percent in 2009,¹¹¹ and planners are expecting that this percentage will grow to 55 to 60 percent by 2020.¹¹² Peerenboom however, argues this growing gap is normal for a developing country, and the inequality will eventually decrease, though it may take several generations. Peerenboom further explains how China is doing well “housing, feeding, and clothing its vast population” as well as funding education and health care given its income level.¹¹³

The problem, as Susan Shirk explains it, is the risk that all these social factors potentially pose to the Communist Party. Since Chinese history has many examples of peasant rebellions overthrowing Chinese dynasties, the risk is high that a “large-scale environmental disaster could spark a revolt.”¹¹⁴ The US-China Economic and Security Review Commission thinks corruption, inflation, and underprivileged migrant workers and rural citizens are the largest threats to China’s stability. However, the Commission believes the Communist Party’s “primary objective . . . is to remain in power;” therefore, the Chinese Communist Party will handle these threats.¹¹⁵ Starr states “a lack of public confidence, a habit of corruption, and a rigidity in the face of change” has “seriously weakened” the party-state; however, he thinks that, in the near term, a collapse of the party-state is unlikely.¹¹⁶ Anderson explains how social unrest has increased with economic growth, stating China’s rural population is a “leadership nightmare.”¹¹⁷

However, Anderson thinks China's economic growth will continue in spite of social problems due to "China's remarkable rise in productivity since 1978 . . . Beijing's political approach to fostering growth, and . . . China's remarkable domestic savings rate."¹¹⁸ Anderson further argues that many of the social problems China is facing are not as bad as they are perceived.¹¹⁹ Anderson shows survey results that indicate the "average Chinese citizen appears satisfied with their leadership's pragmatic approach to governance."¹²⁰ According to Anderson, Chinese citizens tolerate "strong government regulation of the marketplace" because it has brought tremendous economic growth.¹²¹ Geis et. al. argue corruption will likely undermine China's economic growth if the government does not reduce its effect.¹²²

China's Rise

Since China's economy has grown more than 19-fold from 1979 to 2011, raising hundreds of millions of people out of poverty,¹²³ many analysts predict China's continued rise. David C. Kang argues that the majority of nations in East Asia supports China's rise and that China is likely seeking a peaceful rise to power.¹²⁴ Eric C. Anderson tends to agree with China's peaceful rise, adding that China is primarily interested in dominating Asia economically.¹²⁵ Zhu Feng agrees that China is seeking a peaceful rise, arguing China is looking to "avoid becoming isolated, encircled, and contained by the United States."¹²⁶ Zhu Feng, therefore, states that China will continue to use soft balancing but not hard balancing against the US.¹²⁷ He concludes that conflict is not very likely since it is in China's interest to cooperate with the US.¹²⁸

Economies of the US and Japan

Porter analyzes the US and Japan as part of developing his model. His explanation shows both the US and Japan in the innovation-driven stage of development.¹²⁹ *The Global Competitiveness Report 2011-2012* has an updated look at these two nations and shows both of them in the innovation-driven stage. The Global Competitiveness Index does not use the wealth-driven stage as part of its model. The analysis shows that both Japan and US economies are very well established. Japan has been in decline for years due to its macroeconomic weaknesses and large budget deficits. The US has been declining the last three years due primarily to a “lack of macroeconomic stability.”¹³⁰

Summary

This chapter reviewed literature that is a key to answering the research questions presented in chapter 1. The review covered Porter’s economic development model and discussed some literature that has used Porter’s model to analyze the economies of China, the US, and Japan. Additionally, this chapter reviewed literature that discussed many of the problems that are present in the Chinese economy as well as some of China’s strengths. This brief review of the literature demonstrates the strong difference in opinion that exists between analysts of the Chinese economy. It further illustrates the need for more information about the significance of the obstacles present in the Chinese economy. Specifically, though there are many opinions about the future of China’s economy, there is little literature comparing China’s current problems to problems faced by developed countries during their development process. The next chapter will cover the analytical methodology that will be used to study the topic and answer the research questions presented in the first chapter.

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- ¹²³Morrison, 1.
- ¹²⁴Kang, 201.
- ¹²⁵Anderson, xii.
- ¹²⁶Zhu Feng, "China's Rise Will Be Peaceful: How Unipolarity Matters," in *China's Ascent: Power, Security, and the Future of International Politics*, eds. Robert S. Ross and Zhu Feng (Ithaca, NY: Cornell University Press, 2008), 38.
- ¹²⁷*Ibid.*, 53.
- ¹²⁸*Ibid.*, 54.
- ¹²⁹Porter, 569-571.
- ¹³⁰Xavier Sala-i-Martin, *The Global Competitiveness Report 2011-2012*, ed. Klaus Schab (Geneva, Switzerland: World Economic Forum, 2011), 11, 14, 24.

CHAPTER 3

RESEARCH METHODOLOGY

The literature reviewed in chapter 2 provides a summary of the problems present in the Chinese economy and the opinions about the future of the Chinese economy. The goal of this thesis is to determine whether the problems present in the Chinese economy will pose an insurmountable obstacle to China's economic rise. The study provides a detailed look at China's demographic, economic, and social factors and their relationship to China's economic growth. Although there are political, cultural, and military factors that could have an indirect effect on China's economic growth, the study intends to look only at direct effects on economic growth. This chapter discusses the analytical methodology used to analyze the data and form conclusions and recommendations.

For the purpose of this thesis, the term peer competitor was defined previously. This thesis states that, in order to be a peer competitor, China must have the power and motivation to confront the US on a global scale in a sustained way and to a sufficient level where the ultimate outcome of a conflict in any one domain or in all domains of national power is in doubt even if the US marshals its resources in an effective and timely manner.

This thesis will utilize a case study methodology. The case study will focus on China showing a comparative trend analysis of economic, social, and population demographic data from 1978 to 2011. This data trend will be used to make a projection as to the future of the Chinese economy. By comparing this information to the data available for the economic development of the US and Japan, a prediction can then be made about the potential for China to become a peer competitor of the US within the next 20 years.

Though 20 years is a relatively short time period when examining economic growth, there are too many variables affecting economic growth to make a viable projection beyond 20 years.

The research will examine China's economic growth for the period from 1978 to 2011 because it represents a major transformational period for China. China initiated significant policy changes in 1978 with the reform and opening up policies and the one-child policy. Similar time periods were chosen for analysis of the economies of the US and Japan. For the US, the research will examine the 33-year period from 1919 to 1952. The year 1919, was chosen because most economic analysts agree that 1919 was the year the US surpassed the United Kingdom to become the world's dominant superpower. For Japan, the research will examine the 33-year period from 1945 to 1978. This period was chosen because Japan's industry was largely destroyed during World War II; therefore, this period shows the significant growth of Japan's economy while rebuilding their industries.

In analyzing China, the study will look at the economic effects of China's population demographics, social factors, and China's state-owned banking system. The study will apply Porter's model to China's economy to discern where China's strengths lie. Specifically, the study will analyze China's various economic policies and tendencies using Porter's model to determine China's long-term growth potential.

Porter's economic development model divides the economic growth of a nation into four stages based on "competitive advantages." In the factor-driven stage, advantage is gained based on "basic factors of production." These basic factors could include aspects such as "natural resources, favorable growing conditions for certain crops, or an

abundant and semi-skilled labor pool.” In the factor-driven stage, firms have very limited technology and compete based on price. There is very little domestic demand for the goods that are exported. Additionally, protected industries that cater to the domestic sector through import substitution often lack international competitive advantage and “may actually reduce national productivity due to their inefficiency.”¹

In the investment-driven stage, the nation gains advantage through investment in the best technology available on the international market. Though the technology obtained is rarely the latest generation of technology, the domestic firms apply and improve upon the technology. This ability is critical to the nation’s advancement into the investment-driven stage, as is the ability and willingness to invest. While basic factors are still the dominant competitive advantages, some more advanced factors begin to become advantages. Also, in the investment-driven stage, the nation has developed factor creation mechanisms, such as schools and research institutes. The government’s role in the investment-driven stage can be relatively large conducting such activities as temporarily protecting companies to encourage development of domestic rivals and promoting exports. Additionally, “the investment-driven model requires a national consensus that favors investment and long-term economic growth over current consumption and income distribution.”²

In the innovation-driven stage, nations gain advantage through their ability to develop new technology in a wide range of industries. As the economy grows, and incomes and education levels rise, consumers desire more sophisticated products, resulting in thriving rivalry among domestic firms. This rivalry leads to accelerating improvement and innovation. As firms lose advantage from factor costs, they innovate to

improve and create technology establishing competitive advantage with this innovation. The process becomes self-reinforcing as innovation leads to increased sophistication in demand, which in turn spurs more innovation. The government's role in the innovation-driven stage is less substantial and less direct.³

In the wealth-driven stage, investors in the nation desire ways to maintain the wealth they gained previously rather than increase their wealth. This ultimately leads to a period of decline as money is shifted away from industry. Not all nations grow out of the factor-driven stage, and some nations begin to decline before reaching the wealth-driven stage.⁴

The study will use Porter's model to assess the data and determine China's potential for entering the innovation-driven stage. In Porter's model, not all aspects of an economy are in the same stage. Some aspects of an economy may be in the factor-driven stage while other aspects may be in the innovation-driven stage. Therefore, to assess China's potential, the study will look at what aspects of China's economy are most developed and which aspects are least developed.

To compare economies, this thesis will look at several aspects. The thesis will examine how several economic markers change as an economy transforms from a factor-driven economy to an investment-driven economy, and finally to an innovation-driven economy. Finally, the thesis will use the information gathered from these comparisons to answer the research questions. In that regard, the primary research question of the thesis is: Will China become a peer competitor of the US within the next 20 years given its demographic, social and economic problems? In order to answer the primary research question, the thesis intends to answer the following secondary research questions:

1. What demographic, social, and economic problems exist in China?
2. How are these problems affecting China's economic development?
3. What effect do China's state-owned banks have on China's economy?
4. What factors draw so many rural Chinese to travel and work in urban China?
5. Why have the number of protests in China increased in frequency in the last decade?
6. What effect will shifts in population demographics over the next 20 years have on the Chinese economy?
7. How do the social, demographic, and economic factors in China compare to similar factors in other countries during their development?

¹Porter, 546-548.

²Ibid., 548-552.

³Ibid., 552-556.

⁴Ibid., 556-560.

CHAPTER 4

ANALYSIS

This chapter provides analysis of data found while researching the thesis using Porter's economic development model. The chapter will first analyze the demographic, social, and economic factors presented in chapter 2. Then, the chapter will examine the results of the comparison of various economic factors as discussed in the previous chapter. The purpose of the thesis is to identify China's potential for becoming a peer competitor with the US within the next 20 years.

Demographic Factors in China and their Economic Effects

China's demographic problems include an aging population and an excess of males. As the number of elderly becomes a larger percentage of the population, the dependency ratio will increase, creating a more substantial burden on a decreasing working population. Additionally, the 30 million excess males that will be around by 2020¹ will likely continue to increase the social burden in China. Although the one-child policy is part of the cause of these problems, there is evidence that the one-child policy is not the sole reason for the developing problems.

From 1978 to 2011, the working age population increased each year, going from 57.9 percent to 72.6 percent.² This increase in the working age population is what economists refer to as the demographic dividend. The term refers to the increase in economic growth that often accompanies an increase in the percentage of the working age population.³ China's demographic dividend has added 1.8 percentage points per year

to China's GDP growth rate.⁴ The end of China's demographic dividend will subtract 0.7 percentage points per year from China's GDP growth rate by the 2030s.⁵

From 1978 to 2011, the elderly population increased from 4.9 percent of the total population to 8.3 percent.⁶ Researchers expect this percentage to rise to between 20 and 21 percent by 2035.⁷ The working age population will peak between 985 million and 1.01 billion in approximately 2016.⁸ This corresponds to a percentage of the total population of approximately 73 percent. By 2035, researchers expect the working age population to decrease to somewhere between 60⁹ and 66¹⁰ percent. However, unless the government changes policy, the percentage of the population below the retirement age will likely be less than 60 percent by 2035. As a comparison, Japan's working age population has declined from 69.9 percent to 63.3 percent from 1992 to 2011. During this time, Japan's average annual GDP growth rate has been 0.75 percent. Prior to this, from 1979 to 1992, when Japan's working age population, at approximately 68.5 percent, was relatively constant as a percentage of total population, Japan's average annual GDP growth rate was 4.2 percent.¹¹ Therefore, based on Japan's experience, the peaking of China's working age population, and the end of China's demographic dividend, China's economic growth should still be relatively strong for approximately the next five; however, beyond that, China's economic growth will experience a demographic drag unless the Chinese government intervenes soon.

The Chinese government intended to use the one-child policy to keep the fertility rate down to replacement levels; however, there is evidence that the fertility rate has fallen far below replacement levels.¹² A replacement level fertility rate is generally defined as an average of 2.1 children per woman.¹³ China's fertility rate over the last

decade has likely been lower than 1.45.¹⁴ Further, this low fertility rate is likely not caused by the one-child policy.¹⁵ Therefore, removal of the one-child policy would need to be accompanied by a cultural change to result in an increase in the fertility rate. However, an increase in the fertility rate would take at least 15 years to affect the working age population. Another option the Chinese could use to stabilize the working age population is immigration. Immigration is one reason the working age population of the US has not significantly changed in the last 30 years. However, China, since 1980, has lost approximately 940,000 people each year due to migration.¹⁶ Additionally, the government could raise the retirement age in order to increase the amount of working individuals. However, this would only extend the time to find a solution. Therefore, there are few options available to the Chinese government to resolve the issue of an aging population.

In addition to the aging population, China faces problems from an excess number of males. There are currently 118 newborn boys for every 100 girls; this will lead to 30 million excess males by 2020.¹⁷ This excess number of males has created and will continue to create social problems. Though some researchers explain excess males could lead to increased military participation,¹⁸ this has not happened in China. Total armed forces personnel in China have decreased from 3.9 million in 1989 to 2.9 million in 2010.¹⁹ The excess number of males has, however, led to an increase of violent crimes. One-seventh of the 13.6 percent annual increase in criminal offenses that occurred between 1988 and 2004 can be attributed to the rising ratio of males to females.²⁰ During this time period, the ratio of males to females, in the total population, increased from 1.066 to 1.077.²¹ In 2011, the ratio of males to females was 1.080.²² That ratio will

continue to increase as long as the ratio of boys born to girls born is higher than the ratio of males to females. Therefore, the number of crimes will continue to go up for at least the next 15 years.

One potential economic effect resulting from the excess number of males will be from higher savings. Parents of an only son who live in a region with a highly skewed sex ratio tend to increase their savings in order to improve the chances the son will be able to attract a wife. From 1990 to 2007, the savings rate in China increased from 16 percent to 30 percent. More than half of the increase of the savings rate can be attributed to the increasing sex ratio.²³ This phenomenon has the additional effect that it tends to increase housing sizes and prices in regions with high sex ratios.²⁴ This trend implies it may be difficult for the Chinese government to effect increased domestic consumption.²⁵ China could face a problem similar to Japan if circumstances like the above inhibit the transition to a consumption-based economy. Japan faced a recession from 1985 to 1987 when the Japanese government attempted to transition from an export-driven economy to a consumption-driven economy because the domestic companies were not competitive enough.²⁶

Global aging could increase China's economic difficulties. Global aging could cause a reduction of foreign capital inflow into China. By 2050, the worldwide population of children under the age of five will have fallen by approximately 49 million. At the same time, the number of elderly people worldwide will have increased by 1.2 billion.²⁷ Elderly people tend to spend their money rather than invest it. Therefore, as a larger percentage of the population of a nation reaches retirement age, foreign capital flowing out of any given country will decrease, potentially reducing flows into China.²⁸

Economic Problems in China and their Economic Effects

Inefficiencies in China's banking system and China's state-owned enterprises, as well as other economic issues, are areas that reveal potential problems in China's economy. China's investment driven growth has been based on exports and financed by high savings and foreign direct investment. Additionally, subsidies, currency management, and protection of domestic companies have provided a boost to China's economy. However, these practices could have consequences that hinder China's long-term economic growth.

From 1999 to 2008, the number of state-owned enterprises decreased from 37 percent of total enterprises to less than five percent; however, the size of assets owned by state-owned enterprises only decreased from 68 percent to 44 percent.²⁹ The government has been reducing the number of state-owned enterprises by keeping and consolidating the bigger enterprises while closing the smaller enterprises.³⁰ Further, the central government decided to regain control of the economy by naming specific industries where the central government must have complete control.³¹

The central government directly controls 121 very large state-owned enterprises. There are also thousands of other state-owned enterprises that are not directly controlled by the central government.³² In 2010, there were 42 Chinese companies on the *Fortune 500* list of the world's biggest companies; the Chinese government owned 39 of the 42.³³ These state-owned enterprises receive substantial subsidies in the way of low interest rates on loans, forgiveness of debt, access to credit, and protection from foreign competition. According to a report by the Unirule Institute of Economics, state-owned enterprises received 365.3 billion Yuan in subsidies between 1994 and 2006, and the

average annual interest rate for financing a state-owned enterprise was 1.6 percent compared to 5.4 percent for private companies.³⁴ The report also said the average return on equity of state-owned enterprises was 8.2 percent compared to 12.9 percent for larger enterprises that are not state-owned.³⁵ Finally, the report stated that after accounting for the costs of the subsidies, the real return on equity for these state-owned enterprises between 2001 and 2009 was negative 1.47 percent.³⁶ In addition to the financial subsidies, state-owned enterprises also benefit since strategic industries are restricted to Chinese companies; foreign companies are not permitted to operate in these industries.³⁷ Analysis suggests these state-owned enterprises would not survive if not for government support.

The central government controls subsidies to the state-owned enterprises through control of the state-owned banks. Similar to the state-owned enterprises, state-owned banks are somewhat protected from foreign competition. The Office of the US Trade Representative considers the capital requirements for foreign banks desiring to operate in China as a “barrier to entry.”³⁸ Additionally, there are “overly restrictive” requirements for foreign banks to offer financial services in renminbi, and it is “too slow and cumbersome” for a foreign bank to obtain approval to open a new bank or branch.³⁹

The central government uses control of these state-owned banks to subsidize state-owned enterprises. The central government requires the state-owned banks to give below market interest rate loans to state-owned enterprises and sometimes forgive these loans. Up until 1999, China’s banking system was nearly insolvent due to a large number of nonperforming loans. Local governments and state-owned enterprises would default on their loans, making the assumption the central government would continue to provide

capital to prevent banks from going bankrupt. In 1999 and 2000, the State Council attempted to resolve this issue through the use of newly created asset management companies. However, as of 2006, the asset management companies only recovered 24.2 percent of the assets and 20.8 percent of the cash. In order to raise revenue for these asset management companies, the Ministry of Finance permitted Chinese banks to become partial owners. As a result, though 1.4 trillion Yuan in nonperforming loans were originally removed from the balance sheets of four of China's major banks, the nonperforming loans effectively returned as differently named assets.⁴⁰ This practice of subsidizing inefficient companies through below market interest rate loans is not sustainable in the long-term.

The Chinese government's treatment of China's state-owned enterprises is similar in some ways to the Japanese government's treatment of Japan's domestic sector companies. According to Eisuke Sakakibara, a former vice minister of finance for international affairs for Japan's Ministry of Finance, Japan's domestic industries, which included textiles, food processing, construction, and agriculture, were tightly regulated and received a lot of government subsidies. As a result, these companies were not competitive. This lack of competitiveness on the part of the domestic companies has been a problem for Japanese economy.⁴¹

As explained in chapter 3, the government typically has a substantial role in the investment-driven stage of economic growth. Porter explains that governments are "important in such areas as channeling scarce capital into particular industries . . . providing temporary protection to encourage the entry of domestic rivals and the construction of efficient scale facilities . . . and encouraging exports."⁴² The Chinese

central government has protected the state-owned enterprises through subsidies and restricting competition. However, Porter explains “protection must be temporary . . . in order to spur improvement and innovation.”⁴³ Porter further explains that subsidies rarely aid a company or a nation gain “true competitive advantage.” Instead, subsidies often inhibit innovation.⁴⁴ Additionally, there are only three conditions under which protection of new industries may work. The first condition occurs when the industry already has an “effective domestic rivalry.” The second condition occurs if the nation has the potential to develop a strong national “diamond.” The third condition is that the protection is temporary. Protection of established industries for the sake of helping the industry regain competitive advantage seldom works.⁴⁵ Based on this, there is little justification for the Chinese government’s continued protection of certain industries.

Another potential issue with China’s banking system is from loans to local governments that resulted from China’s stimulus after the global financial crisis in 2008. China enacted a four trillion Yuan (US\$629 billion) stimulus, of which local governments were responsible for 70 percent. In order to raise revenue to fund stimulus infrastructure projects, local governments created “local investment companies.”⁴⁶ According to Bloomberg News, 231 of these investment companies had accumulated 3.96 trillion Yuan (US\$622 billion) in debt as of December 2011 to fund infrastructure projects as part of the stimulus. The National Audit Office reported in June 2011 that 6,576 of these investment companies had accumulated 4.97 trillion Yuan in debt. A Hong Kong economist estimates local governments will need an additional seven trillion Yuan in order to complete many of the projects.⁴⁷ One unintended side effect of the stimulus was inflated real estate prices. Some of the stimulus funding went to real estate

investments, which raised property values in many cities throughout China.⁴⁸ A drop in property values could be bad for the investment companies, the local governments, and the banks.⁴⁹ Some property values have already begun to decline. From April to May 2012, home values in China fell in 54 of the 70 cities measured by the government.⁵⁰

Local government debt, as of June 2011, had risen to somewhere between 10.7 trillion Yuan (US\$1.7 trillion) and 14.2 trillion Yuan (US\$2.2 trillion).⁵¹ Approximately 1.84 trillion Yuan (US\$290 billion) of this local government debt is coming due in 2012.⁵² Several financial analysts estimate the ratio of nonperforming loans to total loans in China will rise as a result of this local government debt. Fitch ratings estimates the ratio will rise to somewhere between five percent and 15 percent.⁵³ China Orient Asset Management Company estimates the nonperforming loan ratio could be as high as 15 percent by 2013.⁵⁴ A Credit Suisse report estimates the nonperforming loan ratio will rise from eight percent to 12 percent.⁵⁵ Japan's banking crisis in the 1990s, which was partially due to a real estate bubble, resulted in a peak non-performing loan ratio of approximately 11 percent and caused losses that approached 20 percent of GDP.⁵⁶ Therefore, China seems to be on the verge of a banking crisis that could lead to a significant recession.

China's economic structure is another potential problem area. GDP consists of the sum of consumption, investment, government spending, and net exports. In 1978, government consumption made up 13.2 percent of GDP; household consumption made up 49.5 percent of GDP; exports made up 6.6 percent of GDP; and imports made up 7.1 percent of GDP. In 2011, government consumption made up 12.7 percent of GDP; household consumption made up 37.7 percent of GDP; exports made up 29.3 percent;

and imports made up 26.5 percent of GDP.⁵⁷ Household consumption decreased as a percentage of GDP, while exports increased. Going from above 60 percent in 1977 to approximately 50 percent of GDP from 1978 to 1989, household consumption continued dropping as a percentage of GDP in 1990. Household consumption has made up between 30 percent and 40 percent of GDP since 2005. In current US dollars however, household consumption has increased from US\$73 billion in 1978 to US\$2.8 trillion in 2011, an average annual increase of 8.9 percent. Exports however, have increased at an average annual rate of 12.7 percent.⁵⁸ However, Porter states it is vital in the investment-driven stage for the nation to prefer growth to current consumption.⁵⁹

Foreign direct investment (FDI) inflows into China were US\$430 million in 1982, making up only 0.2 percent of GDP. In 1993, FDI had increased to US\$27.5 billion, reaching a peak of 6.24 percent of GDP. FDI inflows continued to increase reaching US\$185 billion in 2010; however, FDI decreased as a percentage of GDP dropping to 3.12 percent of GDP.⁶⁰ According to Porter, FDI can help a nation upgrade its economy because the foreign investment will “raise national productivity by stimulating improvements by domestic firms and supplanting the less efficient rivals.”⁶¹ However, large amounts of FDI can indicate the nation’s firms lack the ability to defend their home market against foreign competitors.⁶²

China’s currency policy is another area that could potentially affect China’s economic growth. Prior to 1994, China used a dual exchange rate system. The government used the official fixed exchange rate, while importers and exporters used another market-based exchange rate. This method severely restricted imports.⁶³ Between 1994 and 2005, the Chinese government maintained a policy of keeping the Yuan at a

constant exchange rate of approximately 8.28 Yuan relative to the US dollar. Between 2005 and 2008, the Chinese government allowed the Yuan to float with respect to the US dollar; however, the government controlled the rate of change of the Yuan, allowing the Yuan to appreciate “steadily, but very slowly.”⁶⁴ From 2005 to 2008, the Yuan went from 8.28 to 6.83 Yuan per US dollar. Between 2008 and 2010, the Chinese government maintained the Yuan relatively constant due to a decline in global demand for Chinese products. The Chinese government allowed the Yuan to continue appreciating in June 2010. From the middle of 2010 to November 2011, the Yuan appreciated from 6.83 to 6.35 Yuan per US dollar.⁶⁵

Though many nations intervene in currency markets to improve the nation’s ability to compete, currency market intervention is seldom of long-term benefit to the nation’s competitive advantage. Competitive advantage based on cost is a basic factor. Industries need more advanced factors to gain competitive advantage in industries with potential for high productivity. In these industries, competitive advantage is based on innovation. Affecting the value of the currency relieves the need for industries to innovate. When the US dollar was revalued compared to other major currencies in 1985, which resulted in a higher Yen to US dollar ratio, the US auto industry gained in the short-term but lost in the long-term. The US auto industry raised prices to collect profits while the Japanese auto industry, faced with a cost disadvantage, worked hard to improve productivity and increase their ability to compete. Currency devaluation can benefit a nation in the factor-driven and early investment-driven stages; however, currency intervention will ultimately inhibit economic upgrading.⁶⁶ Therefore, China should

remove control of the currency soon in order to encourage innovation through competition.

Social Problems in China and their Economic Effects

Social factors could also affect China's economic development. Corruption throughout business and the government could have long-term deleterious effects if China does not make significant efforts to reduce it. Though it is difficult to determine the exact amount of corruption, it appears that corruption has been increasing over the last three decades. From 1997 to 2002, there were approximately 6,000 local officials prosecuted for corruption each year.⁶⁷ China's National Audit Agency determined that, between 1996 and 2005, there were 1.29 trillion Yuan (US\$170 billion) worth of misappropriated and misspent public funds.⁶⁸ In 2005 alone, corruption cost the Chinese government approximately US\$35 billion due to misuse and embezzlement.⁶⁹ A similar report by China's National Audit Office showed Chinese government officials had misused or embezzled approximately US\$35 billion worth of government funds in the first 11 months of 2009.⁷⁰ In a 2007 study, the Carnegie Endowment for International Peace estimated that corruption cost China at least three percent of GDP per year.⁷¹ By that estimate, corruption would cost China approximately US\$200 billion today.⁷² However, that estimate only considers the direct costs of corruption.

The indirect costs of corruption are potentially worse than the direct costs. Corruption causes an "increase in socioeconomic inequality and the public's perception of social injustice."⁷³ Indirect costs include "efficiency losses, waste, and damage to the environment, public health, education, the credibility of public institutions, and the morale of the civil service."⁷⁴ Comparison with other East Asian nations that have

undergone rapid economic growth reveals potential problems for China. South Korea, Thailand, and Indonesia suffered financial collapses caused partially by corruption during the Asian financial crisis of 1997.⁷⁵ Additionally, corporate and political systemic corruption resulted in the stagnation of Japan's economy for more than a decade.⁷⁶ According to Transparency International, which measures the perception of corruption in a country using survey data, China has a Corruption Perception Index score of 3.6 while the US has a score of 7.1. Japan's score is 8.0. According to the index, measured on a scale of 1 to 10, corruption is perceived to be higher in countries with lower scores.⁷⁷ Corruption has undermined the economic growth of other countries; therefore, corruption could very well inhibit China's economic growth.

Some of China's social problems have come about because of the Chinese government's focus on economic growth. Since the government has centered efforts on growing the economy to maintain employment, the Chinese government has paid little attention to social goods, such as health care, education, and environmental protection.⁷⁸ In 1980 and 1985, China's public spending on education was 2.5 percent of GDP.⁷⁹ In 1993, an outline of China's national plan for education reform and development stated the Chinese government should increase national spending on education to four percent of GDP by the year 2000.⁸⁰ National spending on education in China was 1.86 percent and 1.91 percent in 1998 and 1999, respectively.⁸¹ Figures released in 2010 showed that China's national spending on education had increased to 3.66 percent.⁸² Also in 2010, the central government released a 10-year education reform and development plan that promised to raise national spending on education to four percent of GDP by 2012.⁸³ The average spending on education for developing countries is 4.1 percent of GDP, while the

average for developed countries is 5.1 percent of GDP.⁸⁴ Therefore, reaching four percent will leave China still below the average for developing countries. However, the Chinese government, according to the 2010 10-year education reform and development plan, intends to continue increasing the proportion it spends on education.⁸⁵

Environmental problems, on the other hand, cost the Chinese central government an estimated US\$200 billion, or approximately 10 percent of GDP, in 2005. Central government expenditures to control pollution in 2005 amounted to approximately 1.3 percent of GDP.⁸⁶ China's Twelfth Five Year Plan provides for 3.1 trillion Yuan (US\$454 billion) to be spent on environmental protection.⁸⁷ This amounts to approximately 1.5 percent of estimated GDP for the years 2011 to 2015.⁸⁸ This amount is less than the two to four percent of GDP each year some economists estimate the Chinese government needs to spend to clean up the industrial waste that has accumulated for the last 30 years.⁸⁹ Vice Chairwoman of China's National People's Congress, Chen Zhili, stated environmental investment is likely to rise 14.5 percent per year reaching approximately 2.3 trillion Yuan by 2020.⁹⁰

In addition to the financial costs from environmental problems due to lost productivity, health problems, crop degradation, and pollution-related accidents, China's environmental problems also have a significant social effect. From 2002 to 2005, pollution-related protests increased 30 percent per year to 51,000.⁹¹ Similarly, Chinese citizens use petitions and letters to complain about environmental abuse and seek problem resolution. The number of letters received by China's environmental protection agency increased from 100,000 in 1997 to more than 600,000 in 2006, and there has been an average of 80,000 environmental related petitions each year during the same time.⁹²

Though there is significant water pollution in China, the central government has been putting forth some effort to clean up the pollution. According to China's "Report on the State of the Environment in China" for 2002, 70.9 percent of China's river waters were not fit for drinking, and 40.9 percent of China's river waters were not even fit to be used for irrigation.⁹³ By 2010, 40.1 percent of China's rivers were not fit for drinking, with 16.4 percent not fit to be used for irrigation.⁹⁴ Though China's rivers have shown some improvement, China's lakes have shown very little improvement. In 2003, 75 percent of China's lakes were not fit for drinking, with 35.7 percent not fit to be used for irrigation.⁹⁵ In 2009, 76.9 percent of China's lakes were not fit for drinking, with 34.6 percent not fit to be used for irrigation.⁹⁶

Air pollution is also a problem for many of China's cities; however, the Chinese government has made significant progress cleaning the air in the last decade. In 2002, approximately two out of every three cities failed to meet China's passing standard for air quality.⁹⁷ In 2010, only one in five cities failed to meet this standard. However, China's standard for passing air quality is below the standard recommended by the World Health Organization.⁹⁸ Though China seems to be getting a handle on its pollution problems, the government still needs to continue significant efforts to clean the air and water, both for health reasons and to prevent increasing protests.

As a comparison, the US began significant federal efforts to clean up and control pollution in 1970 with the creation of the Environmental Protection Agency.⁹⁹ Prior to this, pollution control was considered the domain of local and state governments. In 1972, pollution control cost approximately 1.5 percent of GDP.¹⁰⁰ By 1990, the cost of pollution control had risen to approximately two percent of GDP.¹⁰¹ There is

disagreement on the ultimate economic effect of pollution control. Some economists contend that pollution control has cost the US as much as 2.5 percent in economic growth. Other economists argue pollution control has not hurt economic growth because of job creation and innovation.¹⁰² Similarly, Japan established the first central government standards for pollution control in 1967 with the Basic Law for Environmental Pollution Control.¹⁰³ In all three cases, the governments began enacting pollution control measures after pollution had become a significant problem.

Income inequality in China is getting worse; however, inequality typically does get worse before it improves in a developing economy. China's Gini coefficient, according to the World Bank, went from .2911 in 1981 to 0.4248 in 2005.¹⁰⁴ The US Central Intelligence Agency's World Factbook records China's Gini coefficient as 0.415 in 2007 and 0.48 in 2009.¹⁰⁵ However, the International Institute for Urban Development in Beijing calculated China's Gini coefficient to be 0.438 in 2010.¹⁰⁶ Analysts state a Gini coefficient above 0.4 usually indicates there is a higher likelihood of social disturbances.¹⁰⁷

Income inequality exists in Japan and the US as well. By way of comparison, Japan had a Gini coefficient of 0.249 in 1993 and 0.376 in 2008. The Gini coefficient for the US fell for most of the period from 1919 to 1953 reaching approximately 0.36 in 1953.¹⁰⁸ However, the Gini coefficient for the US has been rising since about 1970,¹⁰⁹ reaching 0.408 in 1997 and 0.45 in 2007.¹¹⁰ The rise of income inequality in China is following a normal trend for economic development. Income inequality typically rises with economic development before it begins to fall. Then, after a period of stability, where inequality is at a low level, it may rise again, as in the case of the US.¹¹¹

In addition to income inequality, the gap between rural and urban living has been increasing for the last 33 years. From 1978 to 2010, the percentage of population living in urban areas has increased from 18 percent to 45 percent.¹¹² The income gap between urban and rural residents increased for most of the last three decades. A report by the Chinese Academy of Social Sciences stated that, though the ratio of urban to rural income is just over three to one, urban dwellers effectively have 5.2 times more income than rural dwellers due to certain work related expenses that rural dwellers have. This figure is 68 percent higher than it was in 1985.¹¹³ Data from the National Bureau of Statistics shows however, that the ratio of urban income to rural income reached its peak in 2009 at 3.33 to 1.0.¹¹⁴ The ratio fell to 3.23 in 2010 and 3.13 in 2011.¹¹⁵ This indicates the income gap may be decreasing.

Besides the income gap, the rural population has poorer schools and less access to medical care.¹¹⁶ A 2010 Ministry of Education report on the implementation of education funding in China showed that budgetary spending per student in Beijing is 10 times higher than in Guizhou province.¹¹⁷ Additionally, one survey showed 74 percent of urban teachers in one province held bachelor's degrees compared to 42 percent of rural teachers.¹¹⁸

As a result of China's social problems, protests, petitions, and riots have increased over the past three decades. Protests have grown from 8,700 in 1993¹¹⁹ to 180,000 in 2010.¹²⁰ There are many various causes for these protests; however, the majority of the protests are caused by a few major reasons. Environmental problems have caused an increasing number of protests in the past three decades. Recently, the number of protests caused by environmental reasons has risen at an average annual rate of approximately 29

percent.¹²¹ However, the most common cause, resulting in approximately 60 percent of the protests in China, is illegal land seizures.¹²² Illegal land seizures are a form of corruption in which local officials steal land from farmers and sell it to commercial developers.¹²³ Other causes of protests include rising unemployment, income inequality between the rich and the poor, and unfulfilled government promises. Protests, riots, and petitions are not uncommon in a developing or developed society. The US saw large numbers of incidents during the Great Depression of the 1930s.¹²⁴ The difference between the protests of the US and those of China is that the protests in the US occurred primarily during a time of economic hardship. China has seen the number of protests increase with their economic growth. Protests have increased in number because economic growth has brought increasing inequality, corruption, and environmental pollution. Unless the government handles these growing problems, the number of protests will continue to grow.

Country Comparison

In order to assess China's potential for becoming a peer competitor with the US within the next 20 years, this thesis first compared various economic data between China, Japan, and the US during their respective economic developments. For China, the data encompassed the years 1978 to 2011. For Japan, the data encompassed the years 1945 to 1978. For the US, the data encompassed the years 1919 to 1952.

Growth of GDP provides an insight into the size and growth of the economies. Growth of per capita GDP shows the effect the overall growth is having on the population. The ratio of debt to GDP shows how much debt the countries used to grow the economy. The structure of the economy and how that structure changes as the

economy develops will provide insight into why differences have occurred or might occur between China's development and that of the US and Japan. Additionally, government spending on research and development provides insight into the economy's potential future because, as Porter explains, "an upgrading economy demands a steadily rising level of technology."¹²⁵ The nation's investment in education can, likewise, provide insight into the ability of the economy to compete. According to Porter, "improving the general education system is an essential priority of government, and a matter of economic and not just social policy."¹²⁶

This study also examined how the quality of life for citizens changes as a country develops. To do this, the study looked at several factors. To gain an understanding of how income inequality changes over the course of a country's development, this study looked at the Gini coefficient of China, the US, and Japan over time.

The study also looked at comparative population demographic data. By comparing China's population demographics to those of Japan and the US, the study assessed the extent to which China's demographic issues might negatively affect China's economic growth.

Economic Indicators

China and Japan both had very rapid growth during the periods examined. Japan's GDP increased at a real average annual rate of 9.38 percent from 1946 to 1960 and 8.26 percent from 1960 to 1975.¹²⁷ China's real average annual growth rate from 1978 to 2011 was 9.97 percent.¹²⁸ The US, as expected for a developed country with the world's largest economy, from 1919 to 1952, had a real average annual growth rate of 2.89 percent. However, the period 1919 to 1952 includes the anomalous period of the Great

Depression. Looking at the periods surrounding the Great Depression, the US had a real average annual growth rate of 2.99 percent from 1919 to 1930, and the real average annual growth rate from 1939 to 1960 was 4.39 percent.¹²⁹ Similarly, per capita GDP for China increased at a rate of 8.84 percent, going from US\$165 to US\$2,635.¹³⁰ Japan's rate of increase of per capita GDP was similar, though slightly lower; however, Japan's per capita GDP was significantly higher than China's throughout Japan's development, reaching US\$21,575 in 1978.¹³¹ The per capita GDP of the US started at US\$6,640 in 1919, reaching US\$14,333 in 1952.¹³² Summarily, China's rate of growth of GDP has been very high, and China's GDP is large, second in size only to the US. However, China's per capita GDP is still very low due to China's large population. China's per capita GDP in 2011 is less than half of what the per capita GDP of the US was in 1919. The majority of the countries on the list of developed countries established in the Central Intelligence Agency's World Factbook have a per capita GDP above US\$15,000.¹³³ By that measure, China still has a lot more growth to go before becoming a developed country. China would need to grow at an average annual growth rate of nine percent for the next 20 years in order for its per capita GDP to reach US\$15,000. However, if China's growth rate is slightly lower, at seven percent, then China would need 26 years to reach a per capita GDP of US\$15,000. Therefore, based on the one statistic of per capita GDP, China is not likely to become a developed country within the next 20 years. However, being a developed country is not a prerequisite for being a peer competitor.

The term, developed country, which is similar to International Monetary Fund's term advanced economy, generally refers to a country with a relatively high per capita income. Peer competitor, as defined previously, refers to a country that has the power and

motivation to confront the US on a global scale in a sustained way and to a sufficient level where the ultimate outcome of a conflict in any one domain or in all domains of national power is in doubt even if the US marshals its resources in an effective and timely manner. A country that is not considered developed could be considered a peer competitor if the country had the diplomatic, informational, military, and economic resources to sustain a conflict with the US.

Research and development spending by the government can benefit a nation's economy because it encourages innovation and factor creation that can help the nation compete.¹³⁴ China's research and development expenditure has increased from 0.57 percent of GDP in 1996 to 1.47 percent in 2008.¹³⁵ Japan's spending on research and development has increased from 1.9 percent of GDP in 1971 to 2.8 percent in 1987.¹³⁶ Research and development spending in the US made up less than 0.5 percent of GDP in 1940. After World War II, research and development spending increased rapidly, peaking at approximately three percent in 1964.¹³⁷ Between 1996 and 2008, research and development spending in the US has typically been between 2.5 percent of GDP and 2.8 percent.¹³⁸ The data suggests China will need to approximately double its investment in research and development in order to effectively compete with other nations. Based on Japan's experience, it is unlikely China will reach this level of investment in research and development prior to 2032.

Similar to research and development, investment in education can also help a country upgrade its economy through factor creation. As discussed previously, China's spending on education has been significantly below the average of 4.1 percent of GDP for developing countries. In the 1980s, China's public spending on education was 2.5

percent of GDP.¹³⁹ National spending on education in China was 1.9 percent in the late 1990s.¹⁴⁰ In 2010, China's national spending on education had increased to 3.66 percent.¹⁴¹ Japan's spending on education was 3.9 percent of GDP in 1971 and 5.2 percent in 1975. However, Japan's spending on education dropped to an average of 3.6 percent of GDP between 1998 and 2010.¹⁴² Education spending in the US fluctuated between 1.5 percent of GDP in 1919 and four percent of GDP in the 1960s.¹⁴³ Spending on education in the US has been as high as 7.4 percent of GDP in 1971, though it averaged about 5.5 percent of GDP between 2001 and 2009.¹⁴⁴ The data suggests China does need to continue to increase its spending on education. Based on the significance that education has in creating factors in Porter's model,¹⁴⁵ China should have been investing more heavily in education since 1978. However, despite China's relatively low investment in education, literacy has improved among youth, those aged 15 to 24, from 89 percent in 1982 to 99 percent in 2009.¹⁴⁶ If China continues to invest four percent or more of GDP in education, then the education system will likely be strong by 2032.

Examining economic sectors, China had more value, as a percentage of GDP, coming from agriculture and less from services in 2011 than Japan did in 1978. The value added as a percentage of GDP for agriculture for China went from 28 percent in 1978 to nine percent in 2010. The value added as a percentage of GDP for manufacturing went from 40 percent in 1978 to 31 percent in 2010. The value added as a percentage of GDP for industry went from 48 percent to 44 percent. The value added as a percentage of GDP for services went from 24 percent to 46 percent.¹⁴⁷ The increase in services as a percentage of GDP that occurred during China's growth was also seen in the growth of Japan and the US. For Japan, value added as a percentage of GDP for services reached 57

percent by 1978.¹⁴⁸ For the US, value added as a percentage of GDP for services reached 61 percent by 1970.¹⁴⁹ The data suggests China's economic structure is certainly headed in the right direction; however, China's economic structure in 2011 is not as advanced as Japan's was in 1978. China's value added as a percentage of GDP for services will likely stay below 60 percent until after 2032.

Additionally, a significant portion of China's economic growth was due to exports. Starting below five percent of GDP in 1977, exports grew to 10 percent of GDP by 1980, surpassing 20 percent of GDP in 1994. Exports peaked as a percentage of GDP in 2006 at 39 percent. In 2011, exports made up 29 percent of GDP.¹⁵⁰ Exports were also a significant contributor to the economic growth in Japan.¹⁵¹ From 1960 to 1969, when Japan's GDP grew at an average annual rate of 10.4 percent, Japan's exports grew at an average annual rate of 15.9 percent.¹⁵² Rapid economic growth based on rapid growth in exports was also used by many East Asian nations in the second half of the 20th century. In addition to Japan, the Republic of Korea, Hong Kong, Singapore, Taiwan, Indonesia, Malaysia, and Thailand all promoted export growth and achieved rapid economic growth.¹⁵³

In both Japan and China, the low value of the country's currency relative to the US dollar aided the large export market. When the US dollar was reevaluated with respect to other major currencies at the Plaza Accord in 1985, Japan's exports fell over the next couple years, due in part to the appreciation of the Japanese Yen.¹⁵⁴ From 1985 to 1986, the Japanese Yen appreciated from 239 Yen per US dollar in 1985 to 169 Yen per US dollar in 1986. Over the same time period, exports fell 5.12 percent, going from US\$277 billion, or 14.1 percent of GDP, to US\$263 billion, or 11.1 percent of GDP.

Though exports began increasing in real terms in 1988, exports remained below 11 percent of GDP until 2002. From 1987 to 2008, the Japanese Yen has fluctuated between 100 Yen to the US dollar and 150 Yen to the US dollar.¹⁵⁵ The ability of Japanese firms to recover from the currency shock was, according to Porter, reflective of the existence in the industry of “strong advantages throughout the ‘diamond’.”¹⁵⁶ China would need a similarly strong “diamond” to recover from a currency shock. The slow appreciation of the Chinese Yuan that the Chinese government has been enacting since 2005 is similar to the slow appreciation of the Japanese Yen from 1971 to 1985. A slow steady increase of the currency, “reflecting normal market forces, is most likely to encourage upgrading.”¹⁵⁷ Though China’s control of the exchange rate does not reflect normal market forces, the controlled appreciation of the Yuan with respect to other major currencies is probably China’s best plan since China’s national “diamond” is not as strong as Japan’s was in 1985.

The use of debt, as measured by looking at the ratio of debt to GDP, was similar for China and Japan during the time periods examined. China’s gross government debt to GDP ratio went from 0.97 percent in 1984 to 33.5 percent in 2010 according to data from the International Monetary Fund. International Monetary Fund data shows that China’s gross government debt to GDP ratio lowered to 25.8 percent in 2011.¹⁵⁸ However, Yang Kaisheng, president of the Industrial and Commercial Bank of China, said that adding in local government debt, the debt to GDP ratio is approximately 43 percent.¹⁵⁹ Further, Gordon Chang suggests that, when China’s hidden liabilities are added in, China’s debt to GDP ratio rises to somewhere between 90 percent and 160 percent.¹⁶⁰ During the majority of Japan’s post-war rapid economic growth, Japan’s debt to GDP ratio remained

below 20 percent. From 1954 to 1976, Japan's gross government debt to GDP ratio was below 20 percent.¹⁶¹ After 1976, Japan's gross government debt to GDP ratio increased, reaching 50 percent in the 1980s, surpassing 80 percent in the 1990s, and was 230 percent as of 2011.¹⁶² The US, on the other hand, had a higher ratio of debt to GDP, especially during the war period, from 1943 to 1952. From 1919 to 1931, the debt to GDP ratio of the US remained between 32 percent and 45 percent. Between 1932 and 1942, the debt to GDP ratio for the US remained between 60 percent and 74 percent. From 1943 to 1952, the debt to GDP ratio of the US was above 80 percent, peaking at 129 percent in 1946. After 1953, the debt to GDP ratio of the US continued dropping reaching 68 percent in 1960.¹⁶³ This data suggests nations do not need a significant amount of debt for economic growth.

However, instead of debt, China did use a significant amount of FDI. FDI in China was higher as a percentage of GDP during China's economic growth than it was in Japan or the US. FDI net inflows into China increased from 0.2 percent of GDP, or US\$430 million, in 1982 to 6.2 percent of GDP, or US\$27.5 billion in 1993. In 2010, FDI net inflows into China were 3.1 percent of GDP, or US\$185 billion.¹⁶⁴ By comparison, FDI net inflows into Japan were US\$20 million, or 0.003 percent of GDP, in 1977. Similarly, FDI net inflows into the US have historically been small as a percentage of GDP. Between 1970 and 1995, FDI net inflows into the US were above 1.0 percent of GDP in only three years: 1987, 1988, and 1989.¹⁶⁵ Though the large amount of FDI has helped China's economic growth, it indicates Chinese firms lack competitive advantage. Chinese companies will need to continue enhancing productivity to compete with foreign firms.

In addition to FDI, China also relied on a high domestic savings rate to sustain economic growth. Japan's domestic savings rate was also high. From 1982 to 2010, China's gross domestic savings rate has increased from 36 percent of GDP to 53 percent of GDP.¹⁶⁶ Japan's domestic savings rate was 16 percent in 1946, increased through the 1950s and 1960s to 40 percent in 1970 and then dropped to 32 percent by 1978.¹⁶⁷ By contrast, the US had a significantly lower savings rate than either Japan or China. With the exception of the early 1930s and the early 1940s, when the savings rate dropped significantly, the savings rate of the US between 1920 and 1960 primarily remained between 10 percent and 20 percent.¹⁶⁸ High savings rates were another commonality among the East Asian nations during their rapid economic growth. However, according to a 1993 World Bank study, for the cases of Japan, Indonesia, Korea, Taiwan, and Thailand, high savings was an effect of rapid growth rather than a cause of it.¹⁶⁹

Economic indicators suggest that FDI, high savings, and exports have been some important elements in stimulating China's growth. High savings and exports were also important for Japan's economic growth. Based on Japan's experience, exports worked well to accelerate economic growth until currency revaluation resulted in a drop in international demand due to increased prices.¹⁷⁰ Appreciation of the Yen was meant to aid the transition to a consumption-based economy. Instead, as exports dropped, the "tightly regulated" and "uncompetitive" domestic companies were unable maintain the Japanese economy with consumption.¹⁷¹ Therefore, as the economy slipped into recession, the Bank of Japan lowered the official discount rate in an effort to stimulate the faltering economy. This quantitative easing created an asset bubble that eventually crashed in 1990.¹⁷² Revaluation of the Chinese Yuan could similarly affect China's

export market and the Chinese economy. However, the Chinese central government will not likely release control of the exchange rate based on the lessons they learned from Japan's experience.¹⁷³ Therefore, China will probably not face a currency shock the way Japan did in 1985.

Demographic data reveals that China's age demographics are similar to an aging developed country. From 1920 to 1950, the US had a shift in elderly population that was similar to the shift seen in China from 1978 to 2010; however, there was very little change in the percentage of working age people in the US. While the total population of the US increased from 105.7 million people to 150.7 million people, the elderly population increased from 4.7 percent to 8.1 percent, and the working age population went from 63.4 percent to 65 percent.¹⁷⁴ China's elderly population, similarly, went from 4.9 percent to 8.2 percent; however, the working age population went from 57.9 percent to 72.4 percent.¹⁷⁵ This increase in the working age population is one factor that has helped China's economic growth, as discussed previously. China's percentage of children, meanwhile, has decreased from 37 percent in 1978 to 19 percent in 2010.¹⁷⁶ By comparison, Japan's children population had decreased to 24 percent by 1978,¹⁷⁷ while the percentage of children in the US in 1960 was 31 percent.¹⁷⁸ While Japan's current demographic situation looks decidedly worse than China's, with 13 percent children and 23 percent elderly, the demographic situation of the US does not appear quite as dim as China's. Although the elderly population in the US, at 13 percent, is higher than China's, the percentage of children in the US is also higher, at 20 percent. Additionally, population growth in the US is higher than in China. This is due, in part, to immigration.

The US has had approximately five million immigrants annually since 1980.¹⁷⁹ China, by contrast, has lost approximately 940,000 emigrants annually since 1980.¹⁸⁰

Summary

This chapter has analyzed the various demographic, economic, and social factors that could impede China's long-term economic growth. The chapter also examined several economic indicators in China and compared them to Japan and the US. The data was analyzed using the lens of Porter's economic development model. Chapter 5 will discuss what these results suggest about the answer to the primary research question.

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CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

There are many demographic, economic, and social factors in China that affect China's economic growth. However, only a few of these factors represent significant problems that will undermine China's future economy if the government does not resolve the issues soon. China's aging population and corruption are the primary factors that could potentially halt China's economic growth. The chapter will begin by discussing the most significant factors in China's economy, their consequences, and the answer to the primary research question. The chapter will then conclude with recommendations and suggestions for future research.

China's excess males have created a social burden through increased violence. To resolve these social problems caused by excess males, one cannot discount such novel ideas as legalized prostitution or allowing females to marry more than one male. Though unorthodox, this would remove the threat of increased violence. Regardless, the social problems caused by China's excess males are unlikely, by themselves, to significantly hinder economic growth. The issue of income inequality and the gap between rural and urban living will not play a significant role in affecting the growth of China's economy over the next 20 years. It is normal to see inequality grow during development. As long as the standard of living is increasing throughout the country, China will be able to maintain its growth without too much concern for the growing gap. Excess males and income inequality add to the risk that there will be a unified mass protest; however, these issues alone are not likely to spark a significant protest by themselves.

China's environmental problems, however, are likely to cause problems for China's future growth. The cost of environmental damage and pollution control is significant. The social cost from protests is also substantial. Increased spending on environmental damage and pollution control diverts money away from infrastructure projects and other investments. Tighter regulations on companies to control pollution could inhibit their ability to expand. Since the central government has not regulated companies to control pollution, most of China's enterprises would need to expend substantial amounts to modify their production processes to meet pollution control requirements. Additionally, some infrastructure projects would need to be modified or not accomplished due to the environmental damage they would cause. Though this might slow infrastructure development and economic growth, it is also likely the innovation required to develop environmentally friendly solutions would be of long-term benefit to China.

Failing to make efforts to control pollution, however, will result in an increasing number of protests. As pollution and environmental damage gets worse, protests will become larger and involve more people. Eventually, the protest will become a movement that forces the Chinese government to take action. The Chinese Communist Party does not want a unified movement because Chinese history is replete with examples of peasant rebellions overthrowing governments. Therefore, the Chinese central government will likely put forth enough effort to control pollution so that environmental related protests do not increase. As a result, China will likely be able to manage the environmental issues and keep the economy growing.

Since the number of protests has been growing faster than the economy, the Chinese government needs to resolve the root causes of these disturbances before a unified mass incident results in irrevocable damage to China's economy. Corruption, specifically illegal seizure of land by local government officials, is the number one cause of protests in China. If the Chinese government fails to resolve corruption issues, it is likely protests will increase until a unified movement results in a transformation of the Chinese political system. The Chinese Communist Party will not let this happen. Therefore, the central government will likely take actions to reduce corruption enough so that it is no longer the major issue. However, removing or reducing corruption from Chinese society is important for more reasons than just reducing the number of mass incidents each year. At three percent or more of GDP, the direct costs of corruption are significant. When combined with the indirect costs, however, corruption is a very formidable and costly problem. Whether the central government chooses to reduce corruption or ignore it, economic growth will suffer due to the direct and indirect costs.

On the other hand, China's economic indicators present a relatively positive outlook for a nation in the investment-driven stage. However, China's national "diamond" is not strong enough for China to enter the innovation-driven stage. In order to improve the national "diamond," China needs to improve its ability to create advanced factors. China will need to increase its investment in education and research and development. The school system in China has been improving with the enlarging education budget. If China continues to increase the amount spent, then the Chinese education system will be a strong boost to the economy in 20 years. However, it will

likely take 20 years or more before China's investment in research and development is comparable to other advanced nations.

Also, though China's GDP is very large, it is still a very poor country. China will not reach developed country status within the next 20 years. China would need to maintain its average annual growth rate around nine percent in order to reach the per capita GDP level of a developed country by 2032. Given the various social, economic, and demographic factors, China will not be able to maintain this level of growth. The Chinese government will want to maintain its export-driven growth model for as long as possible in order to sustain rapid growth. Therefore, the central government will continue to control the rate of appreciation of the Yuan in order to suppress consumption and encourage exports.

The Chinese government's influence on the Yuan has been beneficial to China's economy. Porter explains how it is not really necessary nor beneficial in the long-term for the government to affect the currency. Porter further explains that allowing the currency to fluctuate with other international currencies forces companies to innovate to stay competitive. However, since the Chinese government has allowed the Yuan to appreciate with respect to the US dollar over the last six years, Chinese companies are slowly being forced to become more productive. However, since China's national "diamond" is not yet strong enough to support a rapid change in currency valuation, the currency appreciation will need to be slow. A rising Yuan will also slowly reduce savings and improve domestic consumption, as Chinese consumers will have more buying power. Reduced savings means less money available for investment. This combined with lowering exports will slow economic growth. Though consumption will be increasing, it will not be able to

keep up with the drop in exports. However, exports may not significantly drop if Chinese companies are given sufficient time to become internationally competitive. This is the reason the Chinese government will control the appreciation of the Yuan for at least 10 to 15 years.

However, the Chinese government's control of the Yuan and the protection of state-owned enterprises and banks are likely to be a hindrance to China's long-term development. This protection may work well for an economy in the investment-driven stage of economic development; however, these firms may not thrive well enough to push themselves or the economy into the innovation-driven stage. Central government influence in some of China's industries may affect the ability of these enterprises to survive as the economy grows. Inefficiencies that exist due to central government influence may ultimately harm these companies' ability to survive when they are faced with global competition. Additionally, because of the numerous nonperforming loans and the potential insolvency of China's state-owned banks, China's banking system appears fragile. Further, the increase in overdue loans and the expected increase in nonperforming loans over the next few years will potentially make it more difficult for the central government to maintain the economic growth China has experienced over the last 30 years.

Specifically, with the real estate bubble in China, the strength of the economy will be tested as the number of nonperforming loans increases. The central government will again have to fortify the banks reinforcing the model where the government always pays the loans. Eventually, Chinese savers will question the safety of their money and switch to one of the few foreign banks from which they can choose. The government will lose its

foundation of cheap money and will no longer be able to fund economic growth. China will slip into a recession never having reached developed status. Though this scenario may be highly unlikely and a long way off, it displays the severe weaknesses in China's banking system. Unless China's banks and enterprises become more competitive, China will not reach the innovation-driven stage of development.

Finally, China's aging population and the end of the demographic dividend are the most significant issues. Since removing the one-child policy would have little effect on the birth rate, the Chinese government has little hope of correcting its demographic issues in the short term. Immigration and delaying retirement are both possible options. However, China currently loses close to one million people each year to migration. Therefore, immigration is unlikely to work. Delaying retirement will only postpone the problem. The end of China's demographic dividend is likely the biggest obstacle to China's long-term economic health.

As the ratio of dependents to workers rises, health care costs will increase, pension costs will go up, savings rates will drop, and consumption will decrease. Additionally, global aging may cause a reduction in investment flowing into China. The loss of savings and foreign investment money will remove the ability to fund continued investment-driven growth. Additionally, there will not be enough consumption to transition to consumption-based growth. China will have no strong engine for economic growth. Therefore, China's growth will slow significantly before it becomes a developed country. Without action, this slowed economic growth will begin within the next 20 years. Preventing this demographic nightmare from collapsing China's economy will require immediate action that may not have an effect for 15 to 20 years. The

recommendations below suggest one possible path that may prevent the slowing of China's economic growth.

Even if China's economy continues to grow significantly over the next 20 years, China will not become a peer competitor with the US in the next 20 years. There are too many internal issues. If the slightly improbable scenario of a corruption-based unified mass protest causing a dramatic political transformation does not occur, then the Chinese central government will still have difficulty maintaining economic growth given the corruption, environmental issues, and the decreasing working age population. China may have the economic strength to be a peer competitor with the US by 2050; however, even that is unlikely given China's demographic situation. China must remove corruption and resolve its demographic issues, or it will likely falter before developing.

Recommendations

To ensure the economy does not falter before China has a chance to develop, China will need to resolve the issues discussed above. These recommendations represent possible paths to a solution. The two most important issues are corruption and the aging population. To resolve the growing demographic crisis, China needs to begin by removing the one-child policy. This is a first mandatory step, but it will not significantly affect the fertility rate. Therefore, China needs to transform the cultural mentality to expect two to three children per couple. By increasing the ideal family size, the fertility rate should slowly rise. This measure will help to resolve China's long-term population decline; however, it will take more than 20 years to have an effect. As a result, China will need to enact other measures to prevent economic decline due to demographics.

First, China should incrementally raise the retirement age to 70. This will slow down the rate of increase of the dependency ratio, which will give the government more time to resolve the demographic issue. Additionally, the government should adjust policies to change migration patterns. Specifically, the government should encourage the immigration of working age females. Though encouraging the emigration of working age Chinese males would help to resolve the issues from an excess of males, the dependency ratio would worsen. Therefore, the Chinese need to find it socially acceptable for Chinese men to marry foreign women. Then, when the excess males go study or work temporarily in a foreign country, they can marry foreign women and bring them back to China.

In addition to resolving the demographic issues, China should work to improve its national “diamond.” Improving the school system and increasing research and development are a good first step in creating advanced factors. However, Chinese firms need to improve their ability to create competitive advantage through innovation. This is very difficult with government protection and subsidies. The Chinese government needs to remove these protections and release control of the Yuan. Additionally, the government needs to encourage domestic rivalry. Many firms will fail, but the companies that do not fail will quickly become very competitive internationally.

While the stated intention of this thesis was to identify China’s ability to become a peer competitor with the US within the next 20 years, an underlying goal was to assess the threat that demographic, social, and economic factors posed to China’s economic growth. In doing the research, many questions were left unanswered. Is an authoritarian state better able to navigate the pitfalls of the investment-driven stage? What would China’s demographics look like had the one-child policy never existed? How much has

corruption benefited China's economic growth? Does pollution control help or hinder economic growth? There are numerous questions that remain to be explored. China's future growth is filled with risks, and the US and other nations should seek to assist China find the path to development.

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